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Abstract
The association rules of the traditional data mining technique are used to mining higher appearance frequency and support for itemsets. If the association rules are applied to mining the outbreak symptom of excrescent disease, the support of partly outbreak symptom not high will be ridded during the mining process. The reason is that the number of excrescent disease patients is less than the number of ordinary patients. In addition, the outbreak symptom of excrescent disease may have the successively order of time happened, for example, symptom B will just take place sometime of interval later after symptom A. The data mining techniques that generally direct against the higher appearance frequency itemsets and only consider the single dimensional sequential pattern cannot totally search the pattern of outbreak symptom of excrescent disease, and cannot also provide related reference information to prescribe medicine for nursing staff at that time.
Therefore, a high-efficiency algorithm, “Maximal Semi-Frequent Multi- Dimensional Sequential Pattern Algorithm” (MMSA), is proposed to solve important significant rare data and multi-dimensional sequential problem such as the outbreak symptom of excrescent disease in this paper. The features of MMSA are: adopting relative support acting as an objective valuation to sieve more important and significant rare data, i.e., semi-frequent multi-dimensional sequential pattern; through sieving mechanism, it resolves the problem that mining process easily produces excessive and unnecessary candidate sequence, and then promotes a processing efficiency of mining. The MMSA can be used to search for an outbreak symptom of the excrescent disease in the medical science, and provide the information to nursing staff as reference for carry on related diagnosis or medical treatment behavior.
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